

REMARKS

Entry of this amendment is respectfully requested.

It is believed the objection to claim 16 has been overcome by the amendments thereto.

Claims 16-22 were rejected under 35 U.S.C. §102(b) over Faber ('639). Applicants respectfully traverse.

'639 describes the underlying problem as follows:

However, in most cases the amount of color contrast which is achieved by known methods is not as high as desired. Accordingly, there is a constant need for additives which can cause significant color changes to occur in the polymeric materials in which it is incorporated. Moreover, it is highly desirable that these additives not deleteriously affect the beneficial physical properties of the polymers. (see US '639, col. 1, lines 53 to 59).

A "significant color change" in the polymeric material is a necessary feature to solve the problem of laser marking a thermoplastic resin composition.

The goal of the present invention is in providing a solution for the problem that

"...graphite or carbon black (is known) as a suitable absorptive additive, with the additional requirement that the particle size and the maximum amount added should be kept in a tightly controlled range in order to maintain a satisfactory optical clarity of the resulting bottles, or to avoid causing any unacceptable grey colouration. Carbon Black, however, has a higher absorption in the visible wavelength range than in the range of from 700 to 1500 nm, which is disadvantageous for the maximum amount which can be added in terms of the colouration. (See specification, p. 2, lines 4 to 11).

The object of the presently claimed invention is a:

"...thermoplastic polymeric materials which can be heated by exposure to NIR and/or IR light in a straightforward and economical way so that further processing is possible In order to shape them." (spec., p. 2, lines 13 to 16).

Claim 20 has been amended by inserting a definition for the high IR absorption as follows:

wherein the thermoplastic material has a high infrared absorption such that the transparency in the visible wavelength range of from 400 to 700 nm is not significantly impaired and the absorption in the wavelength range of from 700 to 1500 nm is significantly higher than in the visible range" (See also spec., p. 2, line 29 to p. 3, line 5).

This feature is not believed to be taught or suggested by '639, so this rejection must be withdrawn.

Claims 21-24 were rejected under 35 U.S.C. §103(a) over '639. Applicants respectfully submit that this rejection must be withdrawn for reasons discussed above with respect to the 35 U.S.C. §102(b) rejection of claims over the same reference.

Claims 25-28 were rejected under 35 U.S.C. §103(a) over the combination of EP '074 in view of '826 and '465. Claims 29-30 were rejected under 35 U.S.C. §103(a) over the combination of EP '074, '826 and '004. Applicants respectfully traverse each of these rejections.

EP ' 074 sets forth its advantage as follows:

"Surprisingly, the present inventor has now found that if certain phosphorus containing compounds are added to the blends of high molecular weight polyester and low molecular weight PBT, there is achieved a high flow blend having excellent melt stability." (EP '074, p. 2, lines 3-7).

Therefore EP' 074 regards:

"According to the present invention there is disclosed a thermoplastic resin blend comprising: (a) a relatively low molecular weight polybutylene terephthalate resin; (b) a relatively high molecular weight polyester resin; and (c) an effective melt viscosity stabilizing amount of (i) an acidic phosphate salt, (ii) an acid, alkyl, aryl or mixed phosphite having at least one hydrogen or alkyl group, (iii) a Group IB or IIB metal phosphate salt (iv) a phosphorous oxo acid or (v) a mixture of any of the foregoing." (EP '074. p. 2, lines 49-53).

EP' 074 is silent as to any change of the NIR or IR absorption behavior of a thermoplastic containing the claimed copper phosphates.

US '826 says that it

"...relates to a polyamide resin composition comprising a polyamide and an apatite type compound, having high strength and rigidity and is excellent in toughness so as to be suitably used as industrial materials for various mechanical parts and electrical/electronic parts, etc. and further being reduced in water absorption and warpage and excellent in rigidity upon water absorption, heat resistance, creep resistance, dimensional stability and moldability." (US' 826, col. 1, lines 10-18).

The apatite type compound is said to have the formula $A_{10-z}(HPO_4)_z(PO_4)_{6-z}(X)_{2-z}n.H_2O$ wherein $0 \leq z < 2$, $0 \leq n \leq 16$,

A represents a metal element and

X represents an anion or an anionic compound.

Preferably the metal element is at least one metal in Group 2A of the periodic table. (US' 826, claims 7 and 6).

There is no teaching in US '826 regarding the NIR or IR absorption behavior of a thermoplastic containing the claimed copper phosphates.

US' 465 describes:

1. A process for the production of $CaZn_2(PO_4)_2 \cdot 2H_2O$ crystallizing in the Scholzite lattice which comprises heating at a temperature up to about 175°C for up to about 10 hours, an aqueous suspension of $CaZn_2-(PO_4)_2$, filtering off the $CaZn_2(PO_4)_2 \cdot 2H_2O$ and drying it. (US '465, claim 1).

There is no teaching in US '465 regarding the NIR or IR absorption behavior of a thermoplastic containing the claimed copper phosphates.

US '004 is mentioned in the specification and

"...relates to polyesters with improved heat-up rate with regard to infrared light by the incorporation of carbon black therein." (US '004, col. 1, lines 6-9).

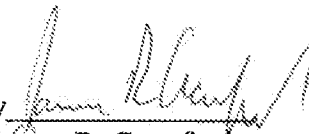
US '004 provides no teaching of what substances could or should replace carbon black. Because none of cited references provides to a man skilled in the art any hint or suggestion that the claimed copper phosphates improve the absorption behavior of thermoplastics, the rejection must be withdrawn since it is based on clearly impermissible hindsight.

In view of the above, allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0624, under Order No. DNAG-322.

Respectfully submitted

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